

ABSTRACT:

A no-spill, automatic-shutoff, vapor-recovery spout (12) for transmitting a volatile liquid, such as fuel, from a container (10) into a tank. The spout comprises a structure having one end connected to and sealed to said container (10), and a second end to be inserted into, and forming a tank seal (56) with, the opening (54) of said tank. The spout includes a conduit (52) which conducts said fuel from said container through said tank seal into said tank, and a second conduit (48) which conducts vapor and air, in the opposite direction, through said tank seal from said sealed tank into the container. Said tank seal is in the form of a cone-shaped collar integral with a spring biased sliding sleeve (20), with the smaller end of said cone facing said tank opening, and having a smooth, continuous, and resilient sealing surface. The cone-shaped collar fits into and seals the range of tank opening diameters normally used with off-road, internal combustion engines. Said sliding sleeve includes, at its distal end, a valve seat (50) which normally closes against a shutoff valve (78) while transmitting the biasing load to the valve head (40). When said sliding sleeve with its tank sealing surface (22) is pushed into the tank opening, the biasing load is transferred to the tank opening (54) forming a tight tank seal (56) isolating the tank from the atmosphere and opening the shutoff valve. Fuel flows from the container through the fuel conduit (52) into the tank and the vapor and air, being displaced by the incoming fuel, flows through the vapor/air conduit (48) into the container. When the fuel reaches a predetermined level in the tank it blocks the entrance to the vapor/air conduit (48), trapping the vapor and air remaining in the tank, where it is compressed by the head of fuel remaining in the container. A pressure balance is thus established between said tank and said container, automatically causing said fuel to stop flowing. Lifting said spout and said tank seal from said tank opening automatically transfers said biasing spring load back to said shutoff valve head closing said valve simultaneously with the removal of said tank seal.